



REBUILD HAWAII STATE FIVE-YEAR ENERGY AND RESOURCE USE ACTION PLAN

July 2001

PRIORITIES, GOALS, AND ORGANIZATION

Introduction

The Rebuild America Program supports the State of Hawaii's goals and priorities to stimulate the economy by increasing the use of more energy efficient technologies through public/private partnerships. The energy cost savings achieved through these efforts have direct and indirect impacts, create new investment and jobs, and reduce pollution. The State's Department of Business, Economic Development, and Tourism (DBEDT) plans and implements energy efficiency programs through the Energy, Resources, and Technology Division (ERTD). These efforts are being supported through ongoing and effective partnerships that have been created with Federal agencies, foremost the U.S. Department of Energy, the counties, the Hawaii utilities, the University of Hawaii and the private sector. In addition to Rebuild America, our priority energy programs encompass activities in several major areas including energy efficiency building codes and standards, technology transfer, analysis of utility Demand-side Management programs, performance contracting, neighbor island assistance, energy emergency preparedness, energy planning and policy, strategic technology marketing and development, transportation energy, distributed energy resources and recycling.

Rebuild America is about building community partnerships. Clearly any government agency would find it impossible to reach all segments of our community simultaneously. The State organized and supports the Rebuild Hawaii Consortium, a group of Hawaii Rebuild America Partnerships, utilities, non-profit organizations, and the private sector linked together by common concerns and commitment toward energy efficiency and sustainable development. The Consortium enables individual partnerships to experience the synergism and heightened enthusiasm fueled by working together on projects that respond to community needs on an individual and statewide basis.

Vision Statement

Rebuild Hawaii State's vision is to lower energy costs through investments in energy-efficient technologies, promote economic growth, build communities, create jobs, and protect the environment. This vision will be achieved through identifying and leveraging statewide resources, assisting Hawaii partnerships to obtain resources for projects, creating community awareness, building partnerships, and employing innovative solutions to resolve resource efficiency issues.

Approach

The State's approach to providing services and support to RBA partners is unique in that Rebuild America activities take place in its four counties that are actually separate islands. The State faces unique challenges in helping existing Rebuild America partnerships expand, raise awareness of the Rebuild America program and market to prospective partners. The State does not actively encourage new partnerships; nevertheless the Rebuild America program is so popular that two new partners joined Rebuild America last year. Major focus during the plan period will be on strengthening and expanding existing partnerships, assisting them to achieve their Action Plan goals, and helping them to implement projects.

Program Goals

Goal 1:

- Provide technical assistance to Hawaii's Rebuild America Partners to assist them to implement energy efficiency as a catalyst for economic development

Goal 2:

- Provide marketing support to partnerships projects to enhance their ability to leverage resources to ensure energy and resource efficiency in buildings

Goal 3:

- Provide professional, financial, and technical support to the Rebuild Hawaii Consortium, a statewide forum established in 1998 to encourage Rebuild America partnerships among government, utilities, community and private business groups in Hawaii share information on energy and resource efficiency.

Goal 4:

- Establish metrics for Hawaii partnerships to demonstrate success or impact of work the partnerships are doing

Major Objectives

Objective 1:

- Continue the State's role as Rebuild America representative to assist partnerships to locate specific technical assistance and funding for their projects. It is anticipated that at least half of the State's partnerships will be assisted annually.

Objective 2:

- Implement the Rebuild Hawaii Consortium Marketing plan and carry out a variety of other activities for partnerships and the Consortium including publications of close-ups, case studies, and quarterly newsletter.

Objective 3:

- Continue to provide staff support to the Rebuild Hawaii Consortium and assist members in leveraging resources to finance projects.

Objective 4:

- Help partnerships to collect information on partnership activities, accomplishments, status of energy efficiency projects and energy savings. Compile this information to support State efforts for additional funding for their Rebuild America program.

Accomplishments to Date

Rebuild Hawaii State, the lead Rebuild America partner in Hawaii, promotes energy efficiency as a catalyst for development and encompasses a number of cooperative endeavors. Its major thrust is the promotion of performance contracting and the Rebuild Hawaii Consortium. The 13 active Rebuild Hawaii partnerships statewide have targeted over 19.7 million square feet of public facilities for efficiency retrofits that are projected to save more than \$7.1 million annually.

Major accomplishments by Rebuild America Hawaii Partners since the inception of the program:

1. University of Hawaii at Hilo performance contract--\$2.9 million investment; \$684,000 average annual savings to date
2. Kauai County buildings performance contract--\$395,000 investment; \$79,000 annual savings
3. County of Hawaii buildings performance contract--\$3,675,000 investment; \$735,000 annual savings
4. City & County of Honolulu performance contract negotiated--\$200,000 investment; \$40,000 annual savings; \$1.5 million contract for LED red and green traffic lights project, \$250,000 estimated annual savings, \$250,000 utility rebate
5. School of Architecture, University of Hawaii at Manoa—design assistance for fire/policy facility in Rainier, Washington
6. Rebuild Hawaii Consortium organized and meets regularly
7. Hawaiian Electric Co., Inc. (HECO) Small Business Market Transformation Project –determined barriers and solutions to installation of energy efficiency devices in small businesses by bundling several projects together for financing and construction. The 7 businesses that completed retrofits save 249,000 kWh annually and \$23,000 annually. HECO is continuing the approach developed in this project for other small businesses.

8. HECO Energy Smart Schools Project that taught high schools students about energy efficiency and assisted them to audit two Oahu high schools and 20 small businesses in their communities. Annual energy savings from the demonstration classroom retrofit are 3,585 kWh, or \$362.
9. HECO Maui Schools Energy Use Intensity study (with Oakridge National Laboratory) shows annual energy savings to be 1,834,827 kWh, a dollar savings of \$368,929 per year. Estimated payback is 5.5 years with 34% savings. The benchmark developed will help the Department of Education prioritize retrofits.
10. Chapter on Measurement and Verification for Energy Performance Contracts (with Lawrence Berkeley National Laboratory)
11. School of Architecture, UH-Manoa--Green Office Exhibit and Seminar features a mobile display of energy-efficient office appliances, recycled materials, and efficient design principles. The project is a research, demonstration and educational outreach program that promotes energy efficient office design, smart energy use, recycling, an indoor air quality in Hawaii.
12. Na Makani Energy Initiative –Began installation of 100 low-cost water heaters on the Island of Hawaii.
13. Housing and Community Development Corporation of Hawaii (HCDCH)—Hope VI Kuhio Park Terrace low-income housing project in preparation
14. In cooperation with Rebuild America, two-page success stories were completed and printed for the following partnerships:
 - Rebuild Hawaii State- *Leveraging Resources for Success*
 - University of Hawaii School of Architecture—*School of Architecture Has Designs on Energy Savings*
 - Rebuild Kauai County—*Adjusting the Course Mid-Stream*
 - Rebuild Hawaii Island—*High-Tech in Paradise*
 - Hawaii State Library System—*Saving Energy by the Book*
 - Hawaii Department of Education—*Rebuilding Hawaii's Schools*
15. In cooperation with Rebuild America, five case studies were developed as follows:
 - Hawaiian Electric Company, Inc.—*HECO Connects with the Community*
 - Hawaiian Electric Company, Inc.—*Hawaii has Discovered Energy Solutions for Small Business*
 - Rebuild Kauai County and Hawaii Department of Education—*20 Take-Home Lessons from Performance Contracting*
 - Housing and Community Development Corporation of Hawaii—*Mali II: Emphasizing the Public in Housing*

- Rebuild Hawaii County—*High Performance Contracting: Hawaii County Building Retrofit*
16. Other publications completed include:
- *Rebuild Hawaii Consortium Fact Sheet*
 - *Rebuild Hawaii Marketing Plan*
 - *Rebuild Hawaii Consortium Business Affiliates Principles and Application*
 - *Measurement and Verification of Energy Savings in Energy Performance Contracts*
 - *Case Study of Energy Performance Contracting at the University of Hawaii at Hilo*
 - *Newsletter (quarterly)*
 - *Rebuild Hawaii Consortium Website*
17. Significant participation in Regional Peer Exchanges and National Forums

Partners and Organization

Rebuild Hawaii State's members include the University of Hawaii at Hilo, Hawaii Army National Guard, and The Judiciary. Rebuild Hawaii is providing technical assistance on performance contracting to all three entities. Rebuild Hawaii, through the Consortium, also partners with other Rebuild America partners in developing, financing, and carrying out various projects such as those listed above.

Rebuild Hawaii State will assist Partnerships as follows:

MARKETING

- 1) Utilize marketing materials developed by the Rebuild Hawaii Consortium including partnership close-ups and case studies, as well as efforts of Consortium members to continue to inform State organizations and communities about the benefits being realized by current partnerships with the Rebuild America program, the requirements of the program, and the assistance available to help achieve desired results in Hawaii. The theme is how Rebuild America is the gateway to technical and professional assistance for partnership development and projects;
- 2) Continue to direct marketing efforts to State and community leaders, using the Rebuild Hawaii Consortium to identify local champions for statewide

and community efforts; and

- 3) Assess partnership projects for innovative or outstanding approaches to energy efficiency to provide content for a case study to Rebuild America.

PLANNING ASSISTANCE

- 1) Assist new partnerships in organization and development by encouraging existing partners to provide advice and assistance based on practical experience with developing energy efficiency goals and measures; and
- 2) Hold information and training sessions for partnerships that focus on obtaining assistance for implementing Action Plans

IMPLEMENTATION

- 1) Work closely with the RBA program, the National Laboratories, and private contractors, to assure that technical assistance products and services are available to new and existing partnerships to assist them to carry out their action plans and achieve progress toward their goals;
- 2) Assist pre-existing and new RBA partnerships to expand by including more organizations and participants in planned events;
- 3) Investigate the availability of local project financing and other activities that will increase flow through of funds to partnerships;
- 4) Continue to utilize State Energy Office programs as resources for Hawaii Rebuild America partnerships and identify successful products developed for State programs that could be used nationally by Rebuild America partners and regionally by Energy Offices in American Samoa, Commonwealth of the Northern Marianas, and Guam;
- 5) Foster and support peer-to-peer exchanges among Rebuild America partnerships in Hawaii and the Pacific Islands through the Rebuild Hawaii Consortium and with other states through the Peer Exchange Program of the Seattle RSO; and

- 6) Report, on a quarterly basis, performance metrics of partnerships in Hawaii using a format provided by DOE. This will be implemented through separate funding for marketing and information technical assistance to the partnerships funded by Stripper Well funds under the State Energy Program.

COMMUNICATIONS

- 1) Maintain regular communications with partnerships and other participating organizations within the State through the State Energy Office and the Rebuild Hawaii Consortium utilizing various electronic means, including a website, and through regular meetings with partnerships;
- 2) Be in regular communications with the U. S. Department of Energy Pacific Liaison, Rebuild America Regional and National Teams by telephone and/or electronic media, and encourage on-site visits; and
- 3) Attend Rebuild America meetings, workshops, and conferences and encourage Hawaii partnerships to actively participate in Regional Peer Exchanges and the National Rebuild America conferences.

Rebuild America Partners in Hawaii

Representatives of existing RBA partners available to advise and assist:

Rebuild Hawaii State—Elizabeth Raman, Program Representative

Rebuild Hawaii County--Raymond Carr, Energy Coordinator

Rebuild Kauai County --Glenn Sato, Energy Coordinator

Rebuild Maui County -- Kal Kobayashi, Energy Coordinator

Rebuild City & County of Honolulu – Allyn Lee, Engineer, Building

Department; Clarice Kam, Engineer, Department of Facilities Maintenance

University of Hawaii, Community Colleges, Physical Facilities Planning and Construction Office—Maynard Young, Director

Maui Community College—Don Ainsworth, Maui Institute for Sustainable Technology

State of Hawaii, Department of Education—Gene Fong, Operations and Maintenance Engineer

Hawaii State Public Library System—Lynn Zane, Volunteer (retired State Energy Statistician)

School of Architecture, University of Hawaii at Manoa—Dr. Steve Meder

Hawaiian Electric Co., Inc. Energy Solutions—Norris Creveston, Director of

Energy Services
The Gas Company—Steve Golden, Marketing Department
Housing and Community Development Corporation of Hawaii—Darrell Chun
Academic Capital (Business Partner)—Tom Halvorsen

Barriers

The Partnerships believe barriers are both challenges and opportunities.

Potential barriers to effective program implementation include:

- **Resources**—Having the dollars to budget for building energy conservation measures and program development;
- **Champions**—Need for a Champion in each partnership to encourage individual building managers and staff to buy into the program
- **Lack of Incentives**—No individual recognition or reward for pursuing energy efficiency in buildings under State Rebuild America program. National recognition is competitive through Energy Awards and only given out once every two years.

CANDIDATE BUILDINGS AND RETROFIT OBJECTIVES

Rebuild Hawaii State target buildings are listed below and savings will be met through performance contracting. Existing candidate buildings are listed in Table 1:

Table 1. Existing candidate buildings

Facility/Building	Square Footage	Projected Annual \$ Cost Savings
Hawaii Army National Guard	483,537	160,054
Judiciary	548,209	448,360
Maui Schools	1,995,088	368,929

Retrofit Objectives

Retrofit projects that are designed to increase the efficiency of building systems will positively affect concerns that are important to the community partnership. Concerns include:

- Indoor air quality and safety
- Comfort and productivity of occupants
- Reductions in system failures
- Expansion of anticipated life-cycle or intended use
- Reduced maintenance
- Reduced utility costs

Targets and Time Frame

The Partnership achieved a successful performance contract at the University of Hawaii at Hilo, mentioned above. It has been working with the National Guard and Judiciary since 1995 to implement performance contracting. An RFP has yet to be issued by either facility.

Costs and Return on Investment

The partnership anticipates that implementation of O&M changes and ECM's will produce a 25 to 40% reduction in total electrical and gas energy use. Any performance contract and ESCO agreement for energy conservation measures will be based on historical expenditures and guaranteed savings.

ACTIONS AND RESPONSIBILITIES

Rebuild Hawaii State will be the lead facilitator in the development of the performance contract and provide other services as described under *Partners and Organization*, pages 6, 7 and 8. A key role to be performed by the Partnership will be to take advantage of the networks established through the National Rebuild America Program, the RBA Regional Peer Exchange Program, NASEO, and the Rebuild Hawaii Consortium to deliver products and

services to the public and private sectors as well as non-profits and non-governmental organizations.

Products and services available through the national Rebuild America program will be identified and requested as needed by the Partnership.

Table 2 lists partnerships that will be assisted with projects during the plan period.

Table 2. Proposed projects by partnership

Partnership	Project Description	Start Date	Comments
HECO	Pacific Coast Electrical Association Conference in Kona	9/20/01	In progress
SEI	Marketing and information	4/20/01	In progress
HECO	Certified Energy Manager Training		New project
School of Architecture, UH-Manoa	Green Office project—Education and Awareness	12/01/01	In progress
C&C of Honolulu	Performance Contracting Team Development		Proposed Omnibus project
Maui Community College	Study of peak demand function for EMS system; feasibility study of ice storage		In progress
GASCO	Public awareness of emerging gas technologies		New project
Housing & Community Development Corporation of Hawaii	HOPE VI—Kuhio Park Terrace		New project
Kauai	Engineering audit of Kauai Lagoons golf course irrigation system		New project
HECO	Energy Smart Schools		New project

	II—additional two high schools on Oahu		
Hawaii	Energy Smart Schools-Ka'u High School		New project
UH School of Architecture	Measuring heat in existing K-12 portable classrooms and developing cooling guidelines		New project
Dept. of Education	Maui Schools retrofit		Continuation of previous project

MONITORING, EVALUATION, AND REPORTING

In performance contracting projects, data on annual energy use will be supplied to the Partnership by the selected ESCO and used for the annual reconciliation of guaranteed savings.

Rebuild Hawaii State has begun a major effort to gather and collate data on energy savings and partnership activities for State reporting purposes. The data being developed will follow RBA IMS requirements. A private contractor has been hired to assist Hawaii Rebuild America partners with these efforts. The work will include preparing a survey to be sent to partnerships, compiling partnership information and inputting data directly into the IMS system. The contractor will also visit each Hawaii Rebuild America partnerships to assist with developing and updating information on partnership activities, accomplishments, status of energy-efficiency projects and energy savings and other information as needed. Selected partnership representatives will be trained to enter data into the IMS.

The State Program Representative will continue to file quarterly progress reports with the U.S. Department of Energy.

PROMOTION AND EXPANSION

A Marketing Plan has been developed separately for the Rebuild Hawaii Consortium and will be used as the basis for promotion of Rebuild Hawaii State's programs. This Marketing Plan is intended to be a dynamic, ever-evolving document that will incorporate new ideas and new projects as the Rebuild Hawaii Consortium continues to grow and evolve.